

FACT SHEET FOR STATE RECLAIMED WATER PERMIT ST 6159
LOTT WASTEWATER ALLIANCE
BUDD INLET WASTEWATER TREATMENT PLANT

SUMMARY

This state reclaimed water permit and fact sheet covers the Class A reclaimed water produced at the LOTT Wastewater Alliance Budd Inlet Wastewater Treatment Plant. The discharge to Budd Inlet from this facility is covered by National Pollutant Discharge Elimination System (NPDES) Permit No. WA0037061. When NPDES Permit No. WA0037061 is renewed, this state reclaimed water permit may be combined with that permit. Until then, the treatment facility will operate under the conditions of both the existing NPDES permit and this new reclaimed water permit.

Other reclaimed water permits will be issued to the LOTT Wastewater Alliance to cover the planned satellite facilities. The first Class A reuse satellite facility, the Hawks Prairie Reclamation plant, is to start construction in 2004 and will be permitted under a separate reclaimed water permit. Some aspects of the permitted LOTT system, such as pretreatment, will only be covered by the NPDES permit for the Budd Inlet discharge, and referenced in the reclaimed water permits.

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INTRODUCTION

This fact sheet is a companion document to the draft State Reclaimed Water Permit No. ST 6159. The Department of Ecology (Department) is proposing to issue this permit, which will allow the beneficial use of Class A reclaimed water. This fact sheet explains the nature of the proposed reclamation and reuse treatment, distribution and use, the Department's decisions on limiting the pollutants in the reclaimed water, and the regulatory and technical bases for those decisions.

The Reclaimed Water Act, Chapter 90.46 Revised Code of Washington (RCW), authorized the development of Water Reclamation and Reuse Standards for the beneficial use of reclaimed water. These standards were completed in 1997. All reclaimed water permits issued by the Department must specify conditions demonstrating that the wastewater has been adequately and reliably treated to meet the requirements in the Water Reclamation and Reuse Standards appropriate for the use. In addition to meeting the water quality limitations, the standards require specific treatment and disinfection requirements beyond those of most conventional wastewater treatment facilities. The standards also require automated alarms, redundancy of treatment units, emergency storage, stringent operator training requirements and public notification of reclaimed water use.

Under the Reclaimed Water Act, a permit is issued to the generator of the reclaimed water who may then distribute the water subject to the permitted provisions governing the location, rate, water quality and purposes of use. RCW 90.46.040 states that a permit is required for land application of reclaimed water. The permit is issued by the Department under the authority of Chapter 90.48 RCW which requires that a permit be issued before any discharge of pollutants to waters of the state is allowed (RCW 90.48.080 and 90.48.162). RCW 90.46.030 states that the Department of Health may issue a permit for industrial and commercial uses of reclaimed water and that the permits will govern the location, rate, water quality and purposes of use. Per memorandum of agreement between the Department of Ecology and the Department of Health, DOH requirements are included in a single permit issued by the Department.

In addition to the Water Reclamation and Reuse Standards, regulations adopted by the State include procedures for issuing permits (Chapter 173-216 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC) and water quality criteria for ground waters (Chapter 173-200 WAC). The Reclaimed Water Act, the Water Reclamation and Reuse Standards and these regulations establish the basis for effluent limitations and other requirements which are included in the permit.

This fact sheet and draft permit are available for review by interested persons as described in Appendix A--Public Involvement Information.

The fact sheet and draft permit have been reviewed by the Washington State Department of Health and by the Permittee. Errors and omissions identified in these reviews have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. Changes to the permit will be addressed in Appendix D--Response to Comments

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<u>GENERAL INFORMATION</u>	
Applicant	LOTT Wastewater Alliance 111 Market Street NE, Suite 250 Olympia, WA 98501
Facility Name and Address	LOTT Wastewater Alliance Budd Inlet Treatment Plant 500 Adams Street NE Olympia, WA 98501
Type of Treatment System:	Class A Tertiary Treatment
Discharge Location	Latitude: 47° 02' 49" N Longitude: 122° 53' 43" W.
Description of Use Area(s)	Within the contributing jurisdictions of Lacey, Olympia, Tumwater, or Thurston County.
Contact at Facility	Name: Jay Ebbeson, LOTT Facility O&M Manager Telephone #: (360) 753-8034
Responsible Official	Name: Michael D. Strub, P.E. Title: Executive Director Address: 111 Market St. NE, Suite 250, Olympia, WA 98501 Telephone #: (360) 664-2333 – ext. 102 FAX # (360) 664-2336

BACKGROUND INFORMATION

DESCRIPTION OF THE COLLECTION AND TREATMENT SYSTEM

HISTORY

The LOTT Wastewater Alliance's Budd Inlet Treatment Facility is a regional facility serving portions of the cities of Lacey, Olympia, Tumwater, and Thurston County. The Budd Inlet secondary treatment facility was largely completed and on-line in August of 1982. Prior to that time a primary treatment facility served the area. The Budd Inlet facility currently provides advanced treatment, more specifically nitrogen removal. Starting in 2004, satellite reuse treatment plants will be added to the system.

The reclaimed water system at the facility that is covered by this permit was constructed in 2003. This is the first reclaimed water produced by LOTT, and is part of their long term plan to reduce dependence on the discharge to Budd Inlet.

COLLECTION SYSTEM STATUS

Each jurisdiction is responsible for their respective collection systems. Several major interceptors are identified as LOTT facilities and are owned and maintained by LOTT. As a part of the LOTT planning process, each jurisdiction has produced general sewer plans. At present, the jurisdictions are updating their plans.

Thurston County currently has no collection lines that discharge into the LOTT sewer system. The City of Lacey is served primarily by a conventional collection system including 15 pump stations, over 309,500 linear feet of gravity flow sewer lines serving approximately 12 square miles. Portions of the Lacey sewer system have been designated to be served by Septic Tank Effluent Pumping (STEP) systems. The City of Tumwater is served by a conventional sewer system including over 223,894 feet of gravity sewer lines serving approximately 8 square miles. It also includes 15 wastewater pumping stations. The City of Olympia is served primarily by a conventional sewer system serving approximately 18 square miles. The system consists of over 698,212 feet of sewer pipe. The system has 51 lift stations. The system is primarily a separate sewer system; however, approximately 600 acres of the downtown area is served by a combined sewer system.

Since the downtown area within the City of Olympia is served by a combined sewer system, during major storm events the potential exists for a raw sewage overflow. The number of overflow events at CSO locations has remained under once per year, however, overflows from manholes and pump stations, have been a continual problem for Olympia during periods of heavy rain.

TREATMENT PROCESSES

The headworks of the Budd Inlet facility consists of four mechanically cleaned bar screens, two aerated grit removal channels, and five equalization basins (2.25 million gallons) used for storage during storm events. The plant has seven rectangular primary sedimentation tanks and an air scrubber for odor control. Covered activated sludge basins provide secondary treatment. The biological nutrient removal system uses the four-stage Bardenpho process operated to target nitrogen removal. The four-stage Bardenpho process includes alternating anoxic and aerobic basins in series which allows the aerobic and anoxic microbiological processes to occur. Ammonia and nitrate/nitrite forms of nitrogen are converted to nitrogen gas. The process requires a very high internal recycle ratio (approximately 4:1) for the process to work. The process consists of the first anoxic basin, the first aeration basin, the second anoxic basin and the second aeration basin. When the biological nitrogen removal process is not in operation

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(November 1, through March 31), the first and second anoxic basins and the second aeration basin are bypassed. Clarification is provided by four secondary clarifiers. Secondary effluent is disinfected with an ultraviolet (UV) system.

The reclaimed water facility at the Budd Inlet treatment plant is designed to have a firm capacity of 700 gallons per minute (about 1 MGD) with a peak capacity of approximately 1000 gpm (1.5 MGD). The reclaimed water facility is within the footprint of the Budd Inlet plant. The facility is still under construction at the time of the writing of this permit and fact sheet. The facility should be on line in 2004. The facility is described in the approved engineering report *Budd Inlet Reclaimed Water Production Facilities Engineering Report* (November 2000).

The reclaimed water facility will start with final effluent from the Budd Inlet treatment plant. This effluent will have undergone UV disinfection prior to transfer to the reclaimed water filters. Three filter feed pumps will transfer the treated Budd Inlet effluent to the new continuous back wash counter current up flow filters. Polymer will be added to the water prior to filtration. Sodium hypochlorite solution will be used for supplementary disinfection and residual control after the filtration. After the disinfection contact basins, the reclaimed water will be stored in a 140,000 gallon tank before reuse. Filter backwash is returned to the plant influent for treatment. The reclaimed water system will be operated as needed to supply reclaimed water to users. At first, most uses will either be in plant uses or irrigations uses. Since the system relies on the back up of discharging water to Budd Inlet, the overall design capacity of the Budd Inlet treatment plant was not increased.

The Water Reclamation and Reuse Standards require the generator of the reclaimed water to either have a Department delegated industrial wastewater treatment program or all industries discharging into the generator's wastewater collection system shall have current waste discharge permits issued by the Department. LOTT has a delegated pretreatment program.

The LOTT Budd Inlet treatment plant is a class 4 plant, so adding the reclaimed water facility does not change the overall classification of the plant.

DISTRIBUTION SYSTEM AND USE AREA

The reclaimed water distribution pipeline is a 12-inch ductile iron pipe that was installed during the construction of the Southern Connection Pipeline Project. The distribution pipe goes through downtown Olympia to Heritage Park and Marathon Park. Most of the identified uses of reclaimed water are either in plant uses, for irrigation, or for limited commercial applications. Some of the potential uses of the class A reuse water listed in the engineering report include: LOTT wastewater treatment plant (peak day 131,443 gpd), Heritage Park/Deschutes Parkway irrigation (peak day 42,700 gpd), Marathon Park irrigation (peak day 8,145 gpd), Capitol Lake pump station (peak day 2,880 gpd), Capitol Campus irrigation (peak day 91,893 gpd), Capitol Campus steam plant (peak day 10,000 gpd), and Port of Olympia uses (peak day 48,610 gpd).

For all these uses, appropriate flow rates, setbacks, signs, and other controls will be in place for the use of class A reclaimed water per the *Washington State Water Reclamation and Reuse Standards* (September 1997).

RESIDUAL SOLIDS

The Budd Inlet treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the primary and secondary clarifiers, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum and screenings are drained and disposed of as solid waste at the local solid waste transfer station. Solids removed from the clarifiers are treated by dissolved air floatation for thickening, anaerobic digestion for

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stabilization, and centrifuge dewatering for final moisture reduction. Process biosolids are hauled from the plant and land applied.

GROUND WATER

The reuse sites are mostly in areas of shallow ground water. The Budd Inlet plant, Heritage Park, Marathon Park, the pump station and the steam plant are all in areas with ground water approximately 2 to 5 feet below the ground surface. Vertical hydraulic conductivity is estimated at some of the sites to be 0.6 to 2 inches/hour. The soil types include Hoogdal and Xerothents. The Capitol Campus has Indianola and Skipopa soils and a vertical hydraulic conductivity of 6 to 20 inches/hour. All irrigation will be done at agronomic rates to prevent impacts to groundwater and to nearby surface water.

PERMIT STATUS

This is a new discharge for this treatment facility. Applications for a permit were submitted to the Department on September 7, 2001, and on April 30, 2002, and accepted by the Department on August 20, 2002.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility last received an inspection on September 26, 2003.

During the history of the present permit for the discharge to Budd Inlet, the Permittee has remained in compliance based on Discharge Monitoring Reports (DMRs) and other reports submitted to the Department and inspections conducted by the Department.

RECLAIMED WATER CHARACTERIZATION

The concentration of pollutants in the reclaimed water is expected to meet Class A standards.

SEPA COMPLIANCE

The LOTT Wastewater Alliance is in compliance with State Environmental Policy Act (SEPA) in their planning. An EIS was completed and included with the *LOTT Wastewater Resource Management Plan* (November 1998).

WATER RIGHTS STATUS

The Permittee is considered the generator of the reclaimed water and RCW 90.46.120 gives the Permittee exclusive right to any water generated by the wastewater treatment facility. Use and distribution of reclaimed water is exempted from the water right permit requirements of RCW 90.03.250 and 90.44.060.

PROPOSED PERMIT LIMITATIONS

The Reclaimed Water Act, Chapter 90.46 RCW requires that reclaimed water be adequately and reliably treated prior to distribution and beneficial use. State regulations require that limitations set forth in a permit issued under Chapter 90.48 RCW must be either technology- or water quality-based. Municipal wastewater must also be treated using all known, available, and reasonable treatment (AKART) and not pollute the waters of the state. The minimum criteria to demonstrate compliance with these requirements are derived from the *Water Reclamation and Reuse Standards* and Chapter 173-221 Washington Administrative Code (WAC).

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The permit also includes limitations on the quantity and quality of the reclaimed water that have been determined to protect the quality of the ground water. The approved engineering report includes specific design criteria for this facility. Water quality-based limitations are based upon compliance with the Ground Water Recharge Criteria (RCW 90.46.080) which are the drinking water standards for the parameters noted and the Ground Water Quality Standards (Chapter 173-200 WAC) for other parameters that require regulation.

The more stringent of the water quality-based or technology-based limits are applied to each of the parameters of concern. Each of these types of limits is described in more detail below.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All reclaimed water permits must assure that the effluent has been adequately and reliably treated so that as a result of that treatment, it is suitable for a beneficial use or controlled use that would not otherwise occur and is no longer considered a wastewater [RCW 90.46.010(40)].

The authority and duties for reclaimed water use are in addition to those already provided in law with regard to sewage and wastewater collection, treatment and disposal for the protection of public health and the safety of the state's waters. All waste discharge permits issued by the Department must specify conditions requiring all known available and reasonable methods of prevention, control, and treatment of discharges to waters of the state (WAC 173-216-110). For land application, the permit requires the reclaimed water to be applied at agronomic rates.

The Water Reclamation and Reuse Standards, 1997, outline the requirements for the additional level of treatment technology as well as water quality limits necessary for public health protection during the use of reclaimed water. The standards provide four classes of reclaimed water, Classes A, B, C, and D.

This facility produces Class A reclaimed water. Class A is the highest quality of reclaimed water and therefore provides the broadest range of reuse opportunities. Conversely, Class A reclaimed water requires the most stringent treatment and water quality limitations. The technology and water quality requirements for the production of Class A reclaimed water are as follows:

“Class A Reclaimed Water” is reclaimed water that had been adequately and reliably treated and, at a minimum is, at all times, an oxidized, coagulated, filtered, and disinfected wastewater.

1. Oxidized is defined as wastewater in which the organic matter has been stabilized such that the biochemical oxygen demand (BOD₅) does not exceed 30 mg/L and total suspended solids (TSS) does not exceed 30 mg/L, is nonputrescible and contains dissolved oxygen.
2. Coagulated wastewater is defined as an oxidized wastewater in which colloidal and finely divided suspended matter have been destabilized and agglomerated prior to filtration by the addition of chemicals or by an equally effective method.
3. Filtered wastewater is defined as an oxidized, coagulated wastewater which has been passed through natural undisturbed soils or filter media, such as sand or anthracite, so that the turbidity as determined by an approved laboratory method does not exceed an average operating turbidity of 2 nephelometric turbidity units (NTU), determined monthly, and does not exceed 5 NTU at any time.
4. Adequate disinfection is defined as the median number of total coliform organisms in the wastewater after disinfection does not exceed 2.2 per 100 milliliters, as determined from the

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bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform organisms does not exceed 23 per 100 milliliters in any sample.

5. A 0.5 mg/L chlorine residual shall be maintained in the reclaimed water during conveyance from the reclamation facility to the use areas.

COMPARISON OF RECLAIMED WATER LIMITATIONS WITH THE EXISTING PERMIT LIMITS

Table 1: Comparison of Present Limits and New Class A Limits

<u>Parameter</u>	<u>Present Limits</u>	<u>Class A Limits</u>
BOD ₅	30 mg/L monthly average	30 mg/L monthly average
TSS	30 mg/L monthly average	30 mg/L monthly average
pH	6.0-9.0	6.0-9.0
Fecal Coliform Bacteria	200/100 ml monthly average, 400/100 ml weekly average	N/A
Total Coliform Bacteria	N/A	2.2/100 ml 7-day median, 23/100 ml sample maximum
Turbidity	N/A	2 NTU monthly average, 5 NTU sample maximum
DO	N/A	Measurably present
Total Nitrogen	N/A	10 mg/L monthly average
Chlorine Residual	N/A	0.5 mg/L minimum daily

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are specified to verify that the treatment process is functioning correctly, that ground water criteria are not violated, and that reclaimed water limitations are being achieved.

INFLUENT AND EFFLUENT MONITORING

The monitoring and testing schedule is detailed in the proposed permit under Condition R2. Specified monitoring frequencies take into account the quantity and variability of the reclaimed water, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of R3 are based on the authority to specify appropriate reporting and recordkeeping requirements to prevent and control the distribution or use of inadequately treated wastewater.

FACILITY LOADING

The design criteria for this water reclamation facility are taken from *Budd Inlet Reclaimed Water Production Facilities* engineering report prepared by Brown and Caldwell and are as follows:

Firm Capacity of Reclaimed Water:	1.0 mgd/700 gpm
Total Filter Capacity:	1.5 mgd/1000 gpm
Maximum Unit Filtration Rate:	3.5 gpm/sf
Maximum Filter Effluent Suspended Solids Concentration:	20 mg/L
Maximum Filter Effluent Turbidity:	1.5 NTU
Minimum Filter Suspended Solids Removal:	90%

OPERATIONS AND MAINTENANCE

The proposed permit contains Condition R.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water pollution the Permittee is required in their NPDES permit to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 Code of Federal Regulations (CFR) 503. The disposal of other solid waste is under the jurisdiction of the local health district.

PRETREATMENT

The Water Reclamation and Reuse Standards require the generator of the reclaimed water to either have a the Department delegated industrial wastewater treatment program or all industries discharging into the generator's wastewater collection system shall have current waste discharge permits issued by the Department. WAC 173-216-110 requires that the list of prohibitions in WAC 173-216-060 be included in the permit. The NPDES permit for this facility covers the delegated pretreatment program.

Federal pretreatment requirements in 40 CFR 403 and Sections 307(b) and 308 of the Clean Water Act apply to this facility. Therefore, notification to the Department is required when pretreatment prohibitions are violated and when new sources of commercial or industrial wastewater discharge are added to its system.

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RECLAIMED WATER USE

These permit requirements are based on the Water Reclamation and Reuse Standards authorized in Chapter 90.46 RCW. The standards contain requirements to assure that distribution and use of reclaimed water are protective of public health and the environment at all times. These include prohibitions on bypass, alarms and storage or alternative disposal of substandard water, maintenance of operational records, cross connection control, use area restrictions and enforceable contracts, and a local reclaimed water use ordinance.

GENERAL CONDITIONS

General Conditions are based directly on state laws and regulations and have been standardized for all municipal waste discharge to ground water permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G6 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Condition G7 requires application for permit renewal 180 days prior to the expiration of the permit. Condition G8 describes transfer of the permit and Condition G9 requires compliance for situations like power failure. Condition G10 deals with removed substances and Condition G11 deals with providing information. Conditions G12 and G13 describe other requirements and additional monitoring. Condition G14 requires the payment of permit fees. Condition G15 describes the penalties for violating permit conditions. Condition G16 deals with property rights and G17 describes the Permittee's duty to comply. Condition G18 deals with toxic pollutants. Condition G19 lists penalties for tampering, while Condition G20 deals with reporting planned changes. Condition G21 describes reporting for non-compliance. Condition G22 deals with reporting and Condition G23 describes compliance schedule reporting.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing the beneficial use of reclaimed water, including those limitations and conditions believed necessary to control toxics, and to protect human health and the beneficial uses of waters of the State of Washington. The Department proposes that the permit be issued for five years. This permit may be combined with the NPDES permit for the facility when the NPDES permit is renewed. In that case, this permit would be canceled when the combined permit is issued.

REFERENCES FOR TEXT AND APPENDICES

Washington State Department of Ecology, 1993. Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems, Ecology Publication # 93-36. 20 pp.

Washington State Department of Ecology and Department of Health, 1997. Water Reclamation and Reuse Standards, Ecology Publication # 97-23. 73 pp.

Washington State Department of Ecology 1998. Chapter E-1, Criteria For Sewage Works Design, Ecology Publication # 98-37. 50 pp

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Washington State Department of Ecology, 1996. Implementation Guidance for the Ground Water Quality Standards, Ecology Publication # 96-02.

Washington State Department of Health, 1994. Design Criteria for Municipal Wastewater Land Treatment, 10 pp

APPENDICES

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to issue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on October 8, 2000, October 15, 2000, July 15, 2002, and July 21, 2002, in *The Olympian* to inform the public that an application had been submitted and to invite comment on the reissuance of the NPDES permit and this permit.

The Department will publish a Public Notice of Draft (PNOD) on December 17, 2003, in *The Olympian* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Administrator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-216-100). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing.

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6278, or by writing to the address listed above.

This fact sheet and permit were written by Dave Dougherty.

APPENDIX B--GLOSSARY

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation--The average of the measured values obtained over a calendar month's time.

Beneficial Use – The use of reclaimed water, that has been transported from the point of production to the point of use without an intervening discharge to the waters of the state, for a beneficial purpose.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of the collection or treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring --Uninterrupted, unless otherwise noted in the permit.

Distribution Uniformity--The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Engineering Report--A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Groundwater Recharge Criteria – The contaminant criteria found in the drinking water quality standards adopted by the state board of health pursuant to chapter 43.20 RCW and the department of health pursuant to chapter 70.119A RCW.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Reclamation Facility -- means an arrangement of devices, structures, equipment, processes, and controls which produce reclaimed water suitable for the intended reuse.

Reclaimed Water – Effluent derived in any part from sewage from a wastewater treatment system that has been adequately and reliably treated, so that as a result of that treatment, it is suitable for a beneficial use or a controlled use that would not otherwise occur and is no longer considered wastewater.

Sample Maximum -- No sample shall exceed this value.

Soil Scientist--An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or

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45 quarter hours professional core courses in agronomy, crops or soils, and have 5,3,or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

Surface Percolation – The controlled application of water to the ground surface for the purpose of replenishing ground water.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Coliform Bacteria—Coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. A microbiological test is used to detect and enumerate the total coliform group of bacteria in water samples.

Total Dissolved Solids--That portion of total solids in water or wastewater that passes through a specific filter.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent pollution of the receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

APPENDIX D--RESPONSE TO COMMENTS

The following comments were received during the Public Notice of Permit held for State Reclaimed Water Permit No. ST 6159. The public notice lasted from December 17, 2003, through January 17, 2004. A Public hearing was not held.

Below is a listing of the comments received. Each comment is followed by the corresponding response, permit change (or lack of change), and the Department justification of the change (or lack of change).

Comments by Mr. John Fedor, Tumwater, Washington

Mr. Fedor submitted the below four-page letter with four pages of attachments (two figures and two newspaper articles) to support his comments.

Comment:

This letter concerns the permitting for waste water from the LOTT Wastewater Alliance treatment plant in downtown Olympia.

I do support the re-use of treated wastewater rather than using new clean municipal well water where appropriate.

I do believe that the permitting process should contain a prohibition, however.

That prohibition should be that **NO** wastewater be dumped into the Salmon Creek drainage basin or adjacent to that basin such that the wastewater would have any effect upon the level of groundwater in the Salmon Creek Drainage Basin.

Thurston County is just completing a many year study of the groundwater flooding problems of the Salmon Creek Drainage Basin.

The Salmon Creek Comprehensive Drainage Basin Plan includes various areas the Plan describes as Critical Areas.

In addition, the Department of Fisheries and the various Tribal councils are opposed to the movement of water within or out of the Salmon Creek Drainage Basin.

Attached is a map of the original Salmon Creek Drainage Basin planning area. You will note that the area encompasses much of the Olympia Airport area as far east as old highway 99, Capitol Boulevard.

On November 15, 2003, the *Olympian* newspaper included an article entitled "LOTT maps strategy to meet limit." The article states that the U. S. Environmental Protection Agency announced last month that the agency intends to decrease the summertime discharge limit from the LOTT treatment plant into Budd Inlet. The article states that LOTT Executive Director, Mike Strub, was quoted as saying "We're pretty confident we can handle 3 million gallons per day in the airport basin."

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Three million gallons per day is one billion ninety-five million (1,095,000,000) gallons per year on an annualized basis.

The Olympia Airport property when annexed into the City of Tumwater was approximately 1,500 acres in size. Much of that property is developed with buildings, hangars, runways, and so forth.

The only undeveloped property of the Olympia Airport for the most part is the southerly portion of the land that is within the original Salmon Creek Drainage Basin planning area.

Heavy rainfall during a four-year period caused significant groundwater flooding throughout the Salmon Creek Drainage Basin. The heavy rainfall during those years were as follows:

- 1996, total precipitation was 62.6 inches, 11.6 inches above average
- 1997, total precipitation was 68.2 inches, 17.2 inches above average
- 1998, total precipitation was 46.0 inches, 5.0 inches below average
- 1999, total precipitation was 72.0 inches, 21.8 inches above average

The above statistics are from the Salmon Creek Comprehensive Drainage Basin Plan, Draft Version IV, November 1, 2003, page 40.

This above average rainfall over four years saturated the ground and resulted in significant groundwater flooding. Figure 4-6 of the above referenced draft report indicates that 603 football fields of water 4 feet deep would have to be drained from the Salmon Creek Drainage Basin in order to eliminate groundwater flooding above ground level.

That would mean that an average of 151 football fields of water 4 feet deep would have to be drained each of the four years in order to not have groundwater flooding raise above ground level.

Figure 4-6 also states that “One football field submerged under four feet of water equals 1,346,493 gallons, (or) equals 4.13 acre feet.”

LOTT proposes to pump 813 football fields of water 4 feet deep into the Tumwater area each and every year. (1,095,000,000 gallons divided by 1,346,493 gallons)

If water is placed in the western or southern part of the airport property, the water will indeed flow into the Salmon Creek Drainage Basin.

Water would be piling up year after year. Since a significant portion of the Port’s property is within or adjacent to the Salmon Creek Drainage Basin, some of the water will inevitably drain further into the Salmon Creek Drainage Basin.

The engineers during the Salmon Creek meetings said that the upper aquifer of the Salmon Creek area was quite porous absorbing water since it was mostly sand and gravel. This means that the rain water infiltrates quickly in most parts of the basin.

The capacity to absorb water in the Salmon Creek Drainage Basin is limited, however. The Basin has been described as too flat to allow for good drainage. “The upper aquifer is 8 to 50 feet thick consisting of well sorted loose sand and gravel which rapidly accepts and stores water. Below this upper aquifer is a second layer of dense, compacted sand and gravel, mixed with silts and clays (commonly referred to as “hardpan”). This description is from the Thurston County

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Department of Water and Waste Management, Salmon Creek Drainage Basin home page on the Thurston County web site.

The LOTT proposal would place up to five and one half times the volume of water into or adjacent to the Salmon Creek Drainage Basin area.

Even placing water in this area during the drier summer months will cause damage. Filling up the upper aquifer would leave little or no room for winter rains. The storage capacity previously available to hold rainfall from the winter months would not be available.

Washington State law, the Urban Growth Management Act, Thurston County regulations and City of Tumwater regulations have provisions to protect "Critical Areas" as does Federal regulations.

I urge you to not allow the dumping of LOTT waste water into the boundaries of the Salmon Creek Drainage Basin including the portions of the airport area that is within the Salmon Creek Drainage Basin or is said to share the Salmon Creek Drainage Basin with the Deschutes Drainage Basin or that is adjacent to either of the above areas.

Disposing of substantial waste water is a problem.

A recommendation was made by Mr. Keith Thomas at the December 2, 2003, Tumwater City Council meeting to pump the LOTT waste water into the Fort Lewis reservation area. He stated that the right of way exists along a public trail and that the area is the natural groundwater replenishment area for both the Deschutes and the Nisqually water basins. He further stated that most of the drinking water for the Olympia, Lacey, and Tumwater area comes from these two basins and recharging them would be a positive result. In addition, Mr. Thomas said he lives fairly close to the area that he proposes to receive the LOTT waste water and that he would have no objection.

Since the disposal of LOTT waste water is a continuing problem and the Salmon Creek Drainage Basin is also a continuing problem, I also request that these comments be retained as part of the permanent file concerning permitting for LOTT's disposal of waste water.

Response:

The Department recognizes the issue of groundwater flooding in the Salmon Creek basin and agrees that LOTT should not use reclaimed water in a way that would cause or contribute to a problem. At this time, LOTT has not submitted to the Department any plans to discharge water in the Salmon Creek drainage basin. The present permit allows only 1.5 MGD of reclaimed water and the existing distribution system does not reach the Salmon Creek basin, making a specific prohibition against use in the basin unnecessary.

Reclaimed water standards require the reclaimed water be put to a beneficial use. Use of reclaimed water that would cause or contribute to groundwater flooding in a basin would not be considered a beneficial use, and therefore would be a violation of the reclaimed water standards and the permit. To clarify this in the permit, a general prohibition against causing flooding was added in the permit. The following was included in the permit Condition R4.B: No reclaimed water shall be used or discharged in a drainage basin or adjacent to that basin such that the reclaimed water would cause or significantly contribute to groundwater flooding in the basin.

Comments by Mr. Keith P. Thomas, Tumwater, Washington

Mr. Thomas submitted a two page informational letter and comments he had presented to the Tumwater City Council with two pages of attachments (a figure and a newspaper article).

Comment:

I would like to submit the attached information for record as it pertains to the LOTT wastewater issue and comment period ending January 17, 2004.

The informational letter and comments I presented to the Tumwater City Council on December 2, 2004, speak to my opinions however; in addition I would like to add the following:

It is easy for people to be for water reuse and water recharge.....but without the proper facilities and infrastructure I fear we will conclude with a situation similar to the old tire recycling scheme, *i.e.*, in the name of good intentions we wind up with nothing more than dump sites of untreated water.

LOTT Strategy Concerns Letter to Tumwater Council Members:

As many of you are aware, I have invested much time and effort into learning about and understanding the Salmon Creek Basin drainage issues and consider myself fairly knowledgeable about this issue. LOTT has proposed a recharge plan I feel would be detrimental to the City of Tumwater and its surrounding area. I am a proponent of groundwater recharge; however, I have serious reservations about the recharge proposed by LOTT for this area. For the following reasons I find LOTT's plan unworkable:

1. The majority of the Port of Olympia is arguably within the Salmon Creek Basin. The Salmon Creek Basin is already affected by severe groundwater flooding. Any additional discharge would only cause further groundwater flooding. The proposed amount of water of three million gallons per day equates to water one foot deep and covering 5.25 square miles annually. This amounts to approximately three times the quantity of water which caused the Salmon Creek flooding in 1999.
2. The reason the Environmental Protection Agency wants wastewater diverted from Budd Inlet is because of its poor quality. In other words, this water needs further treatment. Why would the City of Tumwater also want to be the septic drain field for the Cities of Olympia and Lacey?
3. LOTT has already driven Miller Brewery out of town and now they propose to irrigate the Tumwater Valley Golf Course with poor quality water? American Bottled Water Company would more than likely fall as another victim of LOTT.
4. Groundwater recharge basins should be of some value other than a dumping ground. Who would benefit from this recharge? This proposed basin is too close to the cities to be of any benefit for reconsumption.
5. The Department of Ecology requires that water not be diverted from one basin to another. In all probability, 80 percent of the water flowing into LOTT is withdrawn from the Nisqually Basin via McAllister Springs. It would seem to be a violation to return the majority of this water in the Black River and the Deschutes Basin.

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As an alternative, I would propose the following:

1. Tumwater reject the LOTT proposal.
2. That a plan be submitted which allows LOTT wastewater to be diverted into an area on the Fort Lewis military reservation between Yelm, Rainier, and Lacey.

This plan would work for the following reasons:

1. Right of ways already exists in the Chehalis Western Trail.
2. Recharge treatment would be filtered by extreme separation of populated areas.
3. Recharge would be into the same areas of original water withdrawal.
4. This would truly be a recharge and not strictly a disposal plan.
5. A wide area of Thurston County would benefit from groundwater recharge.

Response:

The Class A water that this permit allows LOTT to use is highly treated and proper facilities and infrastructure exist to beneficially use the reclaimed water. The Class A water is treated to a greater level than the water discharged to Budd Inlet. Mr. Thomas mainly seems concerned about flooding caused by discharge in the Salmon Creek basin, which as stated in the previous response, is not part of the present proposal by LOTT or this permit action. As with the previous commenter, much of this commenter's concerns seem to be based on speculation contained in a newspaper article, and not based on this permit. Large quantities of this water is not planned to be sent to the Salmon Creek basin. The infrastructure in place at this time would not support large discharges to the Salmon Creek basin. The present planned uses of the water include dry weather irrigation around Heritage Park and the Capitol Campus, and other uses that replace existing irrigation water with this reclaimed water. The beneficial reuse of the reclaimed water would not be allowed to cause flooding. The change to the permit listed in the previous comment should also act in response to this comment.

Comments from the Reclaimed Water Policies Task Force of the LOTT Partner jurisdictions.

General Comment:

The following are combined comments from the Reclaimed Water Policies Task Force. The Task Force is comprised of city and county water and utility planning staff working with LOTT on a wide range of challenging reclaimed water issues. Individuals contributing to these comments represent all four of the LOTT Partner jurisdictions — Lacey, Olympia, Tumwater, and Thurston County.

This permit is of vital significance to both LOTT as the producer of reclaimed water and to the municipal utilities as the suppliers of reclaimed water for irrigation and other beneficial purposes. We are highly interested in a permit that meets the regulatory needs of DOE and DOH while being workable for our local entities as we strive to create a viable reclaimed water program.

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Reclaiming wastewater and employing it for irrigation and other uses is a new and very challenging concept for our region. LOTT anticipates significant investment in reclaimed water production facilities. The local jurisdictions face a major financial hurdle to install an entirely new “purple pipe” distribution system. Garnering public acceptance and customer willingness to employ the use of reclaimed water is an additional hurdle. It is vital that the DOE permit avoid creating unnecessary extra hurdles to achieving our mutual interest in a vigorous reclaimed water program for the north Thurston County region.

Workable permit conditions are in the mutual interest of DOE, DOH, LOTT, and the municipal water utilities. Permit provisions must be consistent with the State’s Water Reclamation and Reuse Standards. However, it is imperative that permit provisions be relevant to our particular circumstances. Features of our proposed reclaimed water program that are particularly relevant to permitting include:

- LOTT will only be producing Class ‘A’ reclaimed water. This is fundamental and needs to be explicitly recognized in the permit and fact sheet. This also simplifies permitting issues — regulatory concerns relevant to lower classes of reclaimed water are not pertinent to this Class A-only permit.
- Most use will be normal metered use for non-potable purposes by customers as substitute for potable water.
- LOTT produces and cities will purvey.
- The Budd Inlet reclaimed water production “facility” consists of components within the larger LOTT WWTP. Several customary components of treatment will be handled under the main NPDES permit, such as pre-treatment and solids handling. For clarity, we suggest that the Reclaimed Water permit simply refer the reader to the main LOTT NPDES permit rather than including potentially contradictory and unnecessary text for these components.

Thank you for the opportunity to comment on this milestone permit for reclaimed water in our region.

Specific comments on the draft Fact Sheet and Permit

We appreciate several changes made to the draft permit based on factual comments provided to the earlier draft. We feel the following changes are also needed to create workable permit conditions that will allow us to meet our mutual goal of a vigorous Class A reclaimed water reuse program. We offer the following specific comments for your consideration:

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Comment #1:

Summary: Revise first sentence to read: “...covers the Class A reclaimed water produced...”

Response #1:

The Department agrees with the comment and made the change as requested.

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Comment #2:

Page 1: Introduction, Revise second sentence to read, “The Department is proposing to issue this permit, which will allow the beneficial use of Class A reclaimed water.”

Response #2:

The Department agrees with the comment and made the change as requested.

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Comment #3:

Page 5: R1 Reclaimed Water Limitations: Add a sentence to the beginning of the first paragraph stating, “This permit is for the production and use of Class A reclaimed water only.”

Response #3:

The Department agrees with the comment and made the change as requested.

Comment #4:

Page 9: R3 Reporting and Recordkeeping Requirements, A. Submittal Reporting: The commenter is not clear what the term “reclamation facility” in the second paragraph means. Suggest adding a definition in “Appendix B -glossary” of the Fact Sheet. Proposed definition may be “Treatment facilities and appurtenances within the ownership and control of the Permittee.”

Response #4:

Based on the definition in the *Washington State Water Reclamation and Reuse Standards* (9/97) for a Reclamation Plant, the following definition was added to the glossary: **Reclamation Facility**--means an arrangement of devices, structures, equipment, processes, and controls which produce reclaimed water suitable for the intended reuse.

Comment #5:

Page 10: F. Reclaimed Water Operational Records: Recommend modifying Subsection 1, first sentence, to read “Operating records for the reclamation facility shall be maintained...”

Response #5:

The Department agrees with the comment and made the change as requested.

Comment #6:

F.4. Recommend modifying Subsection 4 to add a sentence at the end of the subsection as follows: “Where end users of the reclaimed water are the utilities or their customers, cross-connection requirements under this permit may be consistent with or integrated into, existing cross-connection control programs implemented by the utilities as required by the Department of Health under WAC 246-290.”

Response #6:

The Department agrees with the comment and made the change as requested.

Comment #7:

Page 11: R4. Reclaimed Water Distribution, A.3: Irrigation use: The proposed requirement for a “detailed water balance analysis” for “any irrigation use” is unnecessary to Class A irrigation. Compliance with this requirement would make it virtually impossible for the city utilities to provide reclaimed water to their irrigation customers. Specific reasons the proposed site specific studies are unnecessary include:

- Under the current permit criteria, Class A water does not differ substantively from well water for this purpose. The constituent of concern appears to be nitrogen. If reclaimed water can not be applied in excess of agronomic / consumptive rates, is this criteria necessary? In addition, when irrigation is most likely to occur, summer TIN levels in reclaimed water will be around 2 - 3 mg/l, compared to north Thurston County typical groundwater N03 levels of .5 - 2. Maximum level under the permit is 10 mg/l TIN.
- Metering sustains a built-in governor on over-use (rates);
- Irrigation will simply be substituting reclaimed for potable water.
- DOE has stated support for intentional groundwater recharge of this reclaimed water (although this is not part of the current permit). It is illogical to require a high level of scrutiny for incidental groundwater recharge during irrigation when DOE supports intentional recharge.

Understandably, where a treatment plant operator is using irrigation to dispose of low-class reclaimed water, “detailed water balance” studies are essential. But these requirements are not relevant to Class A water irrigation use by metered customers.

Suggest revising Section R4.A as follows:

A.2: Add “estimated volume of reclaimed water use” to the list of required items for the Water Reuse Summary Plan. This will be useful information for all types of uses.

A.3: Delete this entire item as unnecessary. Irrigation use issues are addressed in section R4.J on page 14. “Surface percolation” is included in this section. Section M on page 15 already requires modification of the permit if surface percolation is proposed in the future. Including it here is potentially confusing.

Response #7:

Condition R4.A.3 does not require a “detailed water balance analysis,” it just asks for a “water balance.” The present wording in this section would allow for generalized studies for irrigation use in the region, and does not specifically require site specific studies. The present wording requests an “estimated volume of reclaimed water use.” No changes were made to the permit based on this comment.

Comment #8:

C. Authorization for New Direct Non-potable Uses. Delete the sentence: “The water reclamation facility and use areas shall comply with local permitting and land use requirements.” The intent of this statement is unclear. In this case, the reclaimed treatment “facility” is contained within an existing treatment plant. “Use areas” are service for irrigation or other functions. There are no land use compliance issues entailed with either facility or use areas.

Response #8:

This is standard language for reclaimed water permits in Washington State. While no local permitting and land use requirements may apply to the uses planned, the requirement is still valid and there is no reason to remove it from the permit. No change was made to the permit.

Comment #9:

Page 12: D. The statement, “cumulative effect of the facilities” implies that use areas are included in the definition of “facilities.” Recommend clarification of the term “facilities.” Recommend adding to the last sentence, “... or an opportunity for the Permittee to provide comments regarding any circumstances explaining or excusing an excursion outside permit limits, or challenging the finding of a violation by the Department.”

Response #9:

The term “facilities” is being used broadly here to mean this reclaimed water facility, including distribution and use areas, along with other potential reclaimed water facilities and use areas. Changed the permit to read “reclamation facilities and use areas.” Correcting a noncompliance may include an explanation or challenge to the finding, so the last sentence was not changed.

Comment #10:

Page 13: G.3. Use Area Responsibility. This item addresses Pre-Treatment requirements. Inflow to the reclamation works will come entirely from the LOTT facilities subject to Permit No. WA0037061. Suggest if pretreatment needs to be mentioned in this permit, simply refer to the “master” LOTT NPDES permit to avoid confusion.

Response #10:

Condition G.3 was changed to: “The Permittee shall control industrial and toxic discharges to the sanitary sewer that may affect reclaimed water quality through the approved pretreatment program as listed in NPDES Permit No. WA0037061.”

Comment #11:

Page 14: H.5 Service and Use Area Contract. Modify last sentence to read, “in lieu of specific language in each contract, the Permittee working in conjunction with the contributing jurisdictions, may complete and adopt local ordinances, ~~to include~~ and policies and procedures, regulating the distribution and delivery of reclaimed water.

Response #11:

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Condition H.5 was changed to: “in lieu of specific language in each contract, the Permittee working in conjunction with the contributing jurisdictions, may complete and adopt local ordinances, to include policies and procedures, regulating the distribution and delivery of reclaimed water.” The “to include” was not dropped, since this is being done in lieu of language in a contract, therefore, the ordinances should include the policies and procedures.

Comment #12:

J.1 Irrigation Use. “Water balance analysis” of each site is unnecessary and would be a significant impediment to achieving use of reclaimed water. See discussion under item A.3 above. Please delete this unnecessary requirement.

Response #12:

The language was adjusted, including removing the word “detailed.” A generalized hydraulic loading rate can be used for the region for like uses of the reclaimed water. You should have some concept of how many gallons per acre should be used to irrigate each site for a given time of year. This should not be that burdensome to figure out.

Comment #13:

J.2 -4. These items reflect items in the Reclaimed Water Standards. Rather than reciting these requirements, we suggest the following text to address the basic issues and link the permit directly to compliance with the Standards (whatever they may be as changes occur). Proposed replacement for 2—4:

“End users of reclaimed water must make a good faith effort to ensure that their irrigation systems are in good working order, maintained regularly and kept free of leaks. They must further ensure that their irrigation controllers are set so that reclaimed water is applied appropriately to the landscape, to avoid excessive puddling or runoff of water. Sprinkler heads should be adjusted regularly to avoid application of water to impervious surfaces. Irrigation uses shall conform to all requirements of the State Water Reclamation and Reuse Standards.”

Response #13:

This is standard language for reclaimed water permits in Washington State and as stated is straight out of the State Water Reclamation and Reuse Standards. Since the requirements are in the standards, changing the permit to refer to the standards would be reasonable, and more general language could be used in the permit. The following, which is similar to the language requested, was included in the permit: “Irrigation uses shall conform to all requirements of the State Water Reclamation and Reuse Standards. The Permittee in coordination with contributing jurisdictions shall assure that all customers or authorized personnel using reclaimed water have completed training in the requirements for appropriate use of the water. Users of reclaimed water must ensure that their irrigation systems are in good working order, maintained regularly and kept free of leaks. They must further ensure that their irrigation controllers are set so that reclaimed water is applied appropriately to the landscape, to avoid excessive puddling or runoff of water. Sprinkler heads should be adjusted regularly to avoid application of water to impervious surfaces.”

Comment #14:

Page 16: R5. Operation and Maintenance. It is vital that this section be consistent with the varying responsibilities and authority of LOTT, water purveyors and water users regarding O&M and recordkeeping. The following clarifications are suggested.

A. Reclaimed Water System Maintenance. In the first sentence, the term “entire reclamation system” should be defined in the Glossary to the Fact Sheet. Perhaps “All facilities and appurtenances owned and controlled by the Permittee, utilities or end users,” may describe the term. Recommend modifying the second sentence to read, “Maintenance records shall be maintained by the Permittee, utilities or end user on all....” In Subsection (1), delete “distribution and use areas.” In Subsection (2), modify the sentence to read, “A chlorine residual...shall be maintained in the reclaimed water up to the distribution point at which reclaimed water is provided to utilities or end users.” Delete reference to use area.

Response #14:

The phrase “including all facilities and appurtenances owed and controlled by the Permittee, utilities or end users” was added to the end of the first sentence. The second sentence was modified as suggested. “Distribution and use areas” was not deleted from section 1, as these systems should be maintained. Section 2 was not changed either, as the chlorine residual should be maintained in the distribution system, unless waived by the Departments of Ecology and Health.

Comment #15:

B. Operation and Maintenance Manual. In the first sentence define “facility.” “Facility,” “reclaimed water facility,” “water reclamation facility,” and “wastewater control facilities” should be defined in the Glossary to the Fact Sheet.

Response #15:

In this section “facility” refers to the Budd Inlet treatment plant, and the language was adjusted to make that clear. One O&M Manual for Budd Inlet treatment plant, which includes the reclaimed water facility, would be fine, or if LOTT wants it could be split up into separate manuals. “Reclaimed water facility” and “water reclamation facility” both mean the same as reclamation facility or reclamation plant, which was defined in response #4. “Wastewater control facilities” is a broader term to describe any facility to control wastewater, such as the Budd Inlet plant, which in this case would include the reclamation facility.

Comment #16:

Page 19: G-3.B Permit Actions. Modify condition to read “A material change in the condition of the waters of the state caused by the distribution and use of waters under this permit.”

Response #16:

This is standard general language for all discharge permits in Washington State and was not changed. The recommendation will be forwarded to the Department’s permit workgroup for consideration for future permits.

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NOTICE: Reclaimed Water Permit ST 6159

Comment #17:

Modify second sentence to read: "LOTT...is proposing to discharge Class A reclaimed water..."

Response #17:

The notice was used as part of the public comment period and has no purpose at this time and therefore was not changed.

Comments by the LOTT Wastewater Alliance

General Comment:

Production, distribution and use of Class A Reclaimed Water is a significant step for the LOTT Wastewater Alliance and our four government partners (Lacey, Olympia, Tumwater, and Thurston County). We recognize that the implementation structure LOTT and our Partners has designed is quite different than other reclaimed water projects in the state. As a result, we appreciate your efforts to develop a permit that recognizes our unique structure and our intended broad-based urban area uses while remaining consistent with the Reclaimed Water Act and state Water Reclamation and Reuse Standards.

As part of the 30-day public comment period, the LOTT Wastewater Alliance is submitting the following written comments on draft Reclaimed Water Permit Number ST 6159.

Thank you for this opportunity to offer these comments on the draft permit.

Comment #1:

Page 4, Table Item R4.A. —The note "(Due by January 31st)" in the 4th column seems inconsistent with the requirement for first submittal "before distribution of reclaimed water." Please clarify.

Response #1:

The note "(Due by January 31st)" was deleted.

Comment #2:

Page 5, Table, under the category "Disinfected-Reclaimed Water," Total Nitrogen as N -- There appears to be no regulatory basis for this requirement under the Reuse Standards unless surface percolation/groundwater recharge is practiced. We recommend this limit be modified to be conditional and in effect only when one of the established uses is surface percolation/groundwater recharge.

Response #2:

The regulatory basis for this requirement is WAC 173-200, Water Quality Standards for Ground Waters of the state of Washington, not the reuse standards. The nitrogen limit may not be included in all reclaimed water permits, but this permit has somewhat less control on use areas

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and rates than typical, so the quality of the water is being held to a higher standard. No change was made to the permit.

Comment #3:

Page 7 Table, “Dissolved Oxygen” — sampling of the secondary effluent seems inconsistent with this being a reclaimed water permit. The bracketed note above the beginning of the table (page 6) says this is “in addition to” the sampling required by NPDES Permit. Is this really needed when the secondary effluent is already being sampled? “Turbidity” — same comment as above regarding sampling of the secondary effluent. “Coagulant” and “Coagulant Aid” portions of the table — since there is no regulatory target for these items, we don’t understand why they are here. “Total Nitrogen (as N)” — We recommend the N level be based on the Total Inorganic Nitrogen (TIN) level contained in the secondary effluent monitoring and only reported if reclaimed water is being used for surface percolation/ groundwater recharge. Footnote “e” — We suggest that “As calculated....” be reworded to say “May be calculated... allowing the option of reporting an actual measurement. Further, consistent with the previous comment and page 5 comment above, we propose this only be reported if reclaimed water is being used for surface percolation/ groundwater recharge.

Response #3:

The Reuse Standards require the Class A reclaimed water to be oxidized. The secondary treatment process is what accomplishes the oxidation treatment step, so the secondary effluent is the appropriate place to confirm that the wastewater has been oxidized, by confirming the presence of dissolved oxygen. The NPDES permit does not require sampling for dissolved oxygen, so it is appropriate to add the requirement in this permit. Turbidity is sampled in the secondary effluent to confirm the proper operation of the filters, that the turbidity is being reduced by the filters. While there is no regulatory target for coagulant or coagulant aid, Class A standards require the reclaimed water to be coagulated, so you should report how much coagulant or coagulant aid was used. The N level can be based on the TIN in the secondary effluent, as allowed by footnote e. Footnote e was changed as suggested. The sampling frequency was not changed, as explained in response #2.

Comment #4:

Page 7 (Other), Item B Sludge Monitoring — should the specific permit be identified?

Response #4:

This is standard language for all discharge permits in Washington State and was not changed.

Comment #5:

Page 10, Item F.1. — For clarification, we suggest inserting “for the reclamation facility” after “Operating records....”

Response #5:

As stated in the response #5 for the partner jurisdictions, the permit was changed as suggested.

Comment #6:

Page 11, Item A, Water Reuse Summary Plan — In the reference to the approved Engineering Report on the 2nd line, it seems like it would be desirable to identify the dated version and “as amended.”

Response #6:

The date (11/2000) and as amended was added as suggested.

Comment #7:

Item A.3. — Our partner jurisdiction water utilities feel strongly that the level of detail and special documentation required for irrigation uses is inconsistent with the nature of uses in the urban area and with the intent to encourage beneficial use. It is important to realize that most potential users of reclaimed water in our urban area will be small and medium-size users, not large ones. It is important this permit includes the provisions it needs to meet environmental and public health protection needs, but doesn’t make reclaimed water so complicated, paper-intensive, laborious or intimidating to apply for and use that it will discourage customer participation. In our case, the Class A water is a substitute source of water for this purpose rather than a deliberate “disposal” strategy. Current irrigation system water is already expressly non-potable, and the necessary metering of the water offers a built-in governor on over-use, especially since customers will be paying for the water based on their volume of use. Certainly detailed water balance studies are essential where a treatment plant operator is using irrigation to dispose of lower-class reclaimed water, but it seems as though applying the same criteria to Class A water is excessive.

Response #7:

As stated in response #7 for the partner jurisdictions, these are standard requirements that need not be that burdensome to meet. Generalized agronomic rates for irrigation in this region would be fine. The level of detail and documentation is not excessive and is consistent with use of reclaimed water in urban areas. No changes were made to the permit.

Comment #8:

Item A.4. — The reference to “...any additional distribution system” seems redundant, since that’s already required in item A.1 above. In lieu of deletion, it could be added to item A.1 — “Description of the reuse distribution system, including any additional distribution system added since the previous annual update.”

Response #8:

This is standard language for reclaimed water permits in Washington State and was not changed. The request will be forwarded to the staff water reuse workgroup for consideration in future permits.

Comment #9:

Item B, 3rd paragraph — Same comment about identifying the engineering report as for Item A on the same page.

Response #9:

The date (11/2000) and as amended was added as suggested.

Comment #10:

Page 12, Item C.2. — We have multiple comments on this item:

- The reference to “reclamation facility” in line two is not relevant since this section is about use areas.
- We’re not sure use of the water is really relevant to local permitting and land use requirements. Is there a reason this requirement is here?

Response #10:

This is standard language for reclaimed water permits in Washington State and was not changed. As stated in response #8 to the partner jurisdictions, while no local permitting and land use requirements may apply to the uses planned, the requirement is still valid and there is no reason to remove it from the permit. We will refer your comment to the water reuse workgroup for consideration in future permits.

Comment #11:

Item E, 2nd paragraph, 2nd sentence — This sentence contradicts the statement in the paragraph above it that requires all reclaimed water being distributed to meet Class A standards at all times.

Response #11:

The 2nd sentence was deleted.

Comment #12:

Page 13, Item G.3. — This pretreatment provision doesn’t apply here, since this is a “Use Area Responsibilities” section. Also, this is already covered in the NPDES permit for the Budd Inlet Plant.

Response #12:

This is as good as place as any to have a prohibition against toxic discharges to the use areas. The condition was modified as listed in the response to partner jurisdiction comment #10.

Comment #13:

Page 14, Item H.3., 2nd sentence — This requirement is inconsistent with the Water Reuse Summary Plan requirements in section R4.A. on page 11. Any proposed changes would already be covered in the annual reporting updates. If it’s important to specifically highlight changes to previously existing agreements as part of the reporting requirements, that requirement would more appropriately fit in the Water Reuse Summary Plan section (page 11).

Response #13:

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Reference to the Water Reuse Summary Plan was added to the condition as the means to inform the Departments of the changes.

Comment #14:

Item H.5., 4th line —The word “states” is missing an apostrophe.

Response #14:

Changed “states” to “Washington State.”

Comment #15:

Section J.1., Irrigation Use — Our general notes about the irrigation requirements were covered in the page 11 items.

Response #15:

See previous response #7, and responses to the partner jurisdictions #7, #12, and #13.

Comment #16:

Page 15, Section J.4., last paragraph (after d.) -- 2nd sentence — Same inconsistency note as for page 14, Section H.3., 2nd sentence. As noted there, if it’s important to specifically highlight changes to previously existing agreements as part of the reporting requirements, that requirement would more appropriately fit in the Water Reuse Summary Plan section (page 11).

Response #16:

As in response #13, reference to the Water Reuse Summary Plan was added to the condition as the means to inform the Departments of the changes.

Comment #17:

Item M, 1st paragraph — We’re finding that this paragraph has been confusing some readers and leading them to believe it says something different than what it actually is intended to say. We suggest rewording it for clarity. Perhaps something like: “Effluent used for sewage treatment purposes within the bounds of the wastewater treatment facility is not required to meet these standards, except in areas where there is potential public exposure as determined by the Departments of Health and Ecology.”

Response #17:

Paragraph changed as suggested.

Comment #18:

Page 16, Item R5, Introductory sentence — Clarify that “facility” means the “LOTT reclamation facility.”

Response #18:

Actually, in this case “facility” is referring to the LOTT Budd Inlet Plant. These operation and maintenance conditions are in addition to those in the NPDES permit. Since the effluent of the Budd Inlet plant is the influent for the reclamation facility, operation and maintenance of the whole LOTT Budd Inlet plant is of concern for the production of reclaimed water, and the listed conditions are just those added above those listed in the NPDES permit.

Comment #19:

Item R5 Reclaimed Water System Maintenance — The wording requires the Permittee to institute an O&M program “for the entire reclamation system,” but LOTT will not be building or directly overseeing the entire system. The water purveyors will be responsible for their respective part of it, and end users for other parts. This section needs to either simply limit the Permittee’s responsibility to those portions of the system within its direct control, or acknowledge multiple responsibilities. If the latter, possible 2nd sentence revision could be: “Maintenance records shall be maintained by the Permittee, water purveyors or end users on all major electrical and mechanical components of the reclaimed water production system, distribution system, and use areas within their direct control.”

Response #19:

See response #14 to the partner jurisdictions.

Comment #20:

Draft Monitoring Report Form. While continuous monitoring is required for turbidity (page 7 table), the report form lists six specific sampling times, followed by four additional related columns. We interpret this layout to mean the turbidity daily average is the average of the six readings made, and the maximum is the maximum of those six readings. If that is not the intent, clarification is needed.

Response #20:

You have correctly interpreted how to use this layout. The form as provided can be used to meet the requirements for turbidity reporting of your required continuous monitoring, by reporting the six readings per day. If your instruments are capable of providing daily averages and maximums for each day based on all readings taken that day, that could be reported instead and the number of columns in the form could be reduced to three (daily average, maximum, and turbidity performance). Please let the Department know if you would like a revised form.